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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,341	12/03/2003	Philip C. Georgeau	CHE020 P304A	9027
277 7590 04/28/2009 PRICE HENEVELD COOPER DEWITT & LITTON, LLP 695 KENMOOR, S.E. P O BOX 2567 GRAND RAPIDS, MI 49501			EXAMINER CHAPMAN, JEANETTE E	
			ART UNIT 3633	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/726,341	<b>Applicant(s)</b> GEORGEAU ET AL.	
	<b>Examiner</b> Jeanette E. Chapman	<b>Art Unit</b> 3633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/12/09</u> .   | 6) <input type="checkbox"/> Other: _____                          |

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2 and 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zenor (5447006) in view Georgeau et al (6579924) .

Claim 1.

Zenor discloses a roof structure for covering a roof substrate, comprising:

a roof substrate 12-16/34/36 having an upper surface;

a waterproof membrane 12-16/34/36 having an upper side and a lower side that is substantially free of fleece material; see figures 2-3

a moisture curing substantially non-volatile adhesive but not comprised of a silyl-terminated polymer disposed on at least a portion of said lower side of said waterproof membrane in contact with said upper surface of said roof substrate and

Zenor discloses the membrane capable of bonding to said roof substrate to define a portion of a low slope roof of a building structure.

claim 2.

Zenor also lacks the roof structure of claim 1, wherein:

said silyl-terminated polymer comprises a silyl-terminated polyether.

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Georgeau et al discloses such an adhesive used to securing roofing membranes on pitched roofs.

See column 1, line 10-17. See column 3, line 57 thru column 4, line 15.

In view of the above, it would have been obvious to modify Zenor to include the recited material in order to employ readily available, common and workable materials of construction in order to and to include the recited adhesive in order to provide shorter curing times which is also non-shrinking as taught by Georgeau et al.

Claim 4.

Zenor discloses the roof structure of claim 1, wherein:

said waterproof membrane comprises a layer of EPDM rubber; see column 1, lines 26-40

claim 5.

Zenor discloses a roof deck structure, comprising:

a rigid low slope roof structure adapted to be supported at least in part by the walls of a building, said low slope roof structure having a roof substrate 12-16/34/36 defining an upper surface; a waterproof membrane 36 having an upper side and a lower side; Zenor disclose an adhesive but lacks a moisture curing silyl-terminated polymer based adhesive disposed on at least a portion of said lower side in contact with said upper surface of said roof substrate,

Zenor discloses bonding said waterproof membrane 36 to said upper surface of said roof substrate 12

Claim 6.

Zenor lacks the roof deck structure of claim 5, wherein:

said polymer comprises a silyl-terminated polyether.

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Georgeau et al discloses such an adhesive used to securing roofing membranes on pitched roofs.

See column 1, line 10-17. See column 3, line 57 thru column 4, line 15.

In view of the above, it would have been obvious to modify Zenor to include the recited material in order to employ readily available, common and workable materials of construction in order to and to include the recited adhesive in order to provide shorter curing times which is also non-shrinking as taught by Georgeau et al.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zenor (5,447,006) in view Georgeau et al (6,579,924) and further in view of Venable (4,996,812).  
claim 7.

Zenor disclose the roof structure of claim 5, wherein:

said waterproof membrane comprises a layer of EPDM rubber but lacks the layer including a fleece backing material. Venable discloses a roof structure for covering a roof substrate comprising:

- A roof substrate 10 having an upper surface
- A waterproof membrane of EPDM rubber 18 having an upper side and a layer of fleece material 22 disposed on the lower side of the membrane
- A polymer adhesive 15 disposed on the lower side
- The adhesive is disposed within the fleece material and contacts the upper surface of the roof substrate and thereby bonds the membrane to the roof substrate capable of defining a portion of a low slope roof of a building structure define a portion; see figure 3

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- A metal decking or a fluted steel deck 12 having a plurality of elongated upper deck surfaces
- A layer of insulation 14 on the deck 12 forming the roof substrate
- The foam 14 may be considered substantially rigid as insulating foam may be constructed to be “substantially” rigid
- The water proof membrane in contact with the upper surface of the roof substrate

In view of the above it would have been obvious to include the fleece material to provide a waterproof membrane having ventilation properties

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zenor in view of Georgeau et al as applied to claim 1 and further in view of Naipawer, III. Zenor discloses a roofing membrane of EPDM but lacks the alternative material of PVC. Naipawer discloses a roofing membrane of EPDM or PVS. It would have been obvious to one of ordinary skill to employ the alternative material of PVC since it has been shown to be a suitable material for roofing membranes using adhesives.

Claims 8-14, 17-22, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Venable (4996812) in view of Georgeau et al and further in view of Van Wagoner (VW) (4719723). VW discloses a low sloping roof 46 shown in figure 3. VW also discloses a membrane 48 of EPDM rubber. In view of the above, it would have been obvious to apply the roofing membrane of Venable to sloping roof structures in order to impart the membranes to different roof configurations as taught by the VW. The Georgeau reference has been applied in the same manner as described above

For the other limitations see above rejections.

It is clear that if one used the moisture cured adhesive to bond the membrane to the foam substrate then one would also use the adhesive to bond the foam to the metal decking and to bond the foam to the fiberglass gypsum and to bond the fiberglass gypsum to the waterproof membrane in order to preserve the integrity of the roof deck. Venable does not show or disclose any mechanical fasteners.

Claim 8.

Venable discloses a roof deck structure, but lacks that comprising:

a rigid low slope roof structure including a roof substrate having an upper surface; see VW as described above

however Venable does disclose the following:

a waterproof flexible membrane 18 covering said roof substrate, and defining a lower surface;

a moisture curing substantially non-volatile adhesive 15 but not comprising a silyl-terminated polymer in contact with the upper surface of the roof substrate and Venable discloses the lower surface of the flexible membrane to thereby bond the flexible membrane to the roof substrate.

Georgeau et al discloses such an adhesive used to securing roofing membranes on pitched roofs.

See column 1, line 10-17. See column 3, line 57 thru column 4, line 15.

In view of the above, it would have been obvious to modify Venable to include the recited material in order to employ readily available, common and workable materials of construction in order to and to include the recited adhesive in order to provide shorter curing times which is also non-shrinking as taught by Georgeau et al. VW has been considered and applied to Venable as described above.

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claim 9.

The roof deck structure of claim 8, wherein:

Georgeau et al discloses the adhesive comprises a silyl-terminated polyether based adhesive. See motivation statement above.

claim 10.

Venable discloses the roof deck structure of claim 9, wherein:

the flexible membrane 18 includes a layer of fleece matting 22 on one side; and wherein:

at least a portion of the adhesive 15 is disposed in the fleece.

claim 11-14:

The roof deck structure of claim 10, wherein:

the flexible membrane comprises a layer EDPM rubber but not having a thickness of about 0.040-0.070 inches thick.

The thickness of the membrane and the fleece or matting have been considered a matter of choice. Further, the measurement values for the bond strength and the viscosity of the adhesive are also measurement values that have been considered a matter of choice. One of ordinary skill in the art would have appreciated making the fleece/membrane, the bond strength and the viscosity of any measurement values suitable for the intended use function and purpose of the roof structure. The recited measurement values are very much within the scope of the invention to Venable. Further the significance and relevancy of the specific values lacks criticality, significance and relevancy to the overall claimed/disclosed invention. Finding the optimal values providing the intended function for the structure requires mere routine experimentation.

Regarding claims 17-19:



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It is clear that if one used the moisture cured adhesive to bond the membrane to the foam substrate then one would also use the adhesive to bond the foam to the metal decking and to bond the foam to the fiberglass gypsum and to bond the fiberglass gypsum to the waterproof membrane in order to preserve the integrity of the roof deck. Venable does not show or disclose any mechanical fasteners. Again the secondary references of VW and Georgeau have been applied to the base reference in the same manner as described above.

claim 17.

Venable discloses a roof deck structure but lacks that comprising:

a rigid low slope roof structure as shown by VW however, Venable discloses, foam insulation 14 forming a roof substrate;

a waterproof flexible membrane 18 covering said roof substrate;

a moisture curing substantially non-volatile adhesive 15 disposed between the roof substrate 10

and the flexible membrane 10 to thereby bond the flexible membrane 10 to the roof substrate; a

fluted steel deck 12 below the foam insulation 14; and

moisture curing adhesive bonding the foam insulation to the steel deck without the use of mechanical fasteners.

Regarding claim 20:

Georgeau discloses the adhesive includes a silyl-terminated polymer..

claim 21.

Venable discloses a roof deck structure, comprising:

a fluted steel deck 12 having a plurality of elongated upper deck surfaces;

a substantially rigid panel 14/18 disposed on the steel deck, the panel defining upper and lower

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surfaces;

moisture-curing adhesive 15 disposed between the steel deck and the substantially rigid panel in contact with the upper deck surfaces and the lower surface of the substantially rigid panel; and a flexible waterproof membrane 18 disposed above the substantially rigid panel.

claim 22.

Venable discloses the roof deck structure of claim 21, wherein:

the substantially rigid panel comprises insulation board.

Claim 26:

Venable discloses a waterproof membrane comprises a fleece backed material

Claims 15-16, 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Venable (4996812) in view of Georgeau et al and VW and further in view of Beck (4498267). .

Claim 15.

Venable lacks the roof deck structure of claim 8, wherein:

the roof substrate comprises fiberglass reinforced gypsum board.

claim16.

Venable also lacks roof deck structure, comprising:

a rigid low slope roof structure as described by VW above; the reference is applied to the base reference in the same manner as described above;

Venable however does teach a waterproof flexible membrane 18 covering said roof substrate 10; a moisture curing substantially non-volatile adhesive 15 disposed between the roof substrate 10 and the flexible membrane 18 to thereby bond the flexible membrane to the roof substrate; and wherein:

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the roof deck structure includes a layer of foam insulation 14 but not below the fiberglass reinforced gypsum board.

Regarding claim 23;

Beck discloses an upper layer of water proof material and an underlaying of fiberglass reinforced gypsum. See the abstract. In view of the above it would have been obvious to one of ordinary skill to include the fiberglass reinforced gypsum under the water proof membrane of Venable in order to optimize the strength while minimizing the weight and cost of the roofing structure as taught by Beck.

Regarding claims, 24 and 25:

It is clear that if one used the moisture cured adhesive to bond the membrane to the foam substrate then one would also use the adhesive to bond the foam to the metal decking and to bond the foam to the fiberglass gypsum and to bond the fiberglass gypsum to the waterproof membrane in order to preserve the integrity of the roof deck. Venable does not show or disclose any mechanical fasteners. Again the secondary references of VW and Georgeau have been applied to the base reference in the same manner as described above.

Claims 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Venable (4996812) in view of Georgeau et al and Van Wagoner (VW) as applied to claim 21 and further in view of Naipawer II. The base reference has been considered as described above and the secondary references have been applied to the base reference in the same manner as described above.

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### ***Response to Arguments***

Applicant arguments have been considered but are not deemed persuasive.

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Applicant argues,

“With respect to independent claims 1 and 5, Applicant respectfully asserts that there would be no reason to modify Zenor '006 or Venable '812 to include a moisture curing silyl- terminated polymer adhesive.” “As this court has explained, however, a flexible TSM test remains the primary guarantor against a non-statutory hindsight analysis such as occurred in this case. In re Translogic Tech., Inc., 504 F.3d 1249, 1257 (Fed.Cir.2007)

(" [A] s the Supreme Court suggests, a flexible approach to the TSM test prevents hindsight and focuses on evidence before the time of invention"). The TSM test, flexibly applied, merely assures that the obviousness test proceeds on the basis of evidence-teachings, suggestions (a tellingly broad term), or motivations (an equally broad term)-that arise before the time of invention as the statute requires." "[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp." stating that "The passage above in KSR posits a situation with a finite, and in the context of the art, small or easily traversed, number of options that would convince an ordinarily skilled artisan of obviousness." Ortho-McNeil at 1364. The secondary reference of Georgeau et al posits a situation with a finite, and in the context of the art, small or easily traversed, number of options that would convince an ordinarily skilled artisan of obviousness. Georgeau teaches a method of forming a seal around a roof penetration, that includes a step of dispensing a one part moisture curable, pourable sealer (or adhesive) composition containing a silyl terminated polymer into a pitchpan or pitch pocket formed around a roof penetration. Zenor teaches a method of patching a single ply roof using a polymer adhesive; the patch and roof includes waterproof membrans

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Venable '812 discloses a method of membrane application in roof construction using a polymer adhesive, a decking , insulation and a waterproof membrane , the decking and the insulation.

Motivation statement were clearly given above for combining the teachings of the above references.

APPLICANT'S ARGUMENTS ARE MOOT IN VIEW OF THE NEW GROUND OF REJECTION.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chapman E. Jeanette whose telephone number is 571-272-6841. The examiner can normally be reached on Mon.-thursday, 8:30-6:00, every fri. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Glessner can be reached at 571-272-6841. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JEANETTE CHAPMAN/  
PRIMARY EXAMINER  
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